FACT SHEET FOR NPDES PERMIT NO. WA0037788
COWLITZ WATER POLLUTION CONTROL PLANT

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of Chapter 90.48 Revised Code of Washington (RCW) which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits (Chapter 173-220 Washington Administrative Code [WAC]), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department of Ecology's (Department) response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	Cowlitz Sewer Operating Board Jointly managed by: Beacon Hill Sewer District, Cowlitz County, City of Kelso, and City of Longview 207 Fourth Avenue North Kelso, Washington 98626
Facility Name and Address	Cowlitz Water Pollution Control Plant 467 Fibre Way Longview, Washington
Type of Treatment:	Activated Sludge
Discharge Location	Columbia River River Mile 67.5 Latitude: 40° 5' 52" N Longitude: 122° 5' 52" W
Water Body ID Number	WA-CR-1010

The outfall discharges through a multiport diffuser at River Mile 67.5 of the Columbia River, just downstream of the confluence with the Cowlitz River.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

In 1972, Cowlitz County, the Cities of Longview and Kelso, and the Beacon Hill Sewer District entered into an agreement for regional treatment of sewage from the urban areas of the County in the vicinity of Longview and Kelso. The Cowlitz Sewer Operating Board (CSOB) was formed to oversee and manage the planing, design, construction, and operation of a new wastewater collection and treatment system to serve a major portion of the Longview-Kelso area. Construction of a 10 MGD activated sludge treatment plant was completed in 1976. The City of Longview still maintains a lagoon wastewater treatment plant to treat the wastewater flows from West Longview. Currently CSOB staffs, operates and maintains the West Longview Lagoons as part of an inter-local agreement between the CSOB and Longview.

The existing service area for the wastewater system includes 12,500 acres. The future CSOB sewer service boundary includes 17,000 acres not included within the existing service boundary. The future boundary is defined by topography and by the Urban Sphere of Influence identified in the comprehensive plans of the Cities of Kelso and Longview. Residential communities in the future service areas currently use septic systems. When sewer services are provided for the future service areas, they will tie into the existing collection system.

The local agencies served by the CSOB have the authority to administer and enforce regulations set forth in the CSOB authorizing agreement and in their respective sewer ordinances. The U.S. Environmental Protection Agency (EPA) and Washington State Department of Ecology are authorized to enforce the rules, regulations and standards set forth in the federal Clean Water Act.

The CSOB currently has very little authority to control the quality or quantity of inflow to its system. Its authority is limited to establishing annual budgets, developing operating procedures and operating the plant in accordance with state and federal regulations, hiring and maintaining staff to operate the regional wastewater treatment plant, and entering into contracts related to plant and conveyance system operations. The CSOB also has authority to develop regulations.

The influent flow to the plant increases dramatically in the wet winter months due to Infiltration and Inflow, causing effluent violations to occur. The local jurisdictions have worked on Infiltration and Inflow correction over the years to try to eliminate high flows to the plant. The plant summer flow is about 4-5 MGD. The Maximum month flow in the winter months can go up to about 17 MGD, with a peak hourly flow of about 30 MGD or above. Effluent quality starts degrading at about 13 MGD. The secondary portion of the plant has to be bypassed at around 20 – 30 MGD influent flow. Clearly, in wet years, the influent flows that reach the Cowlitz Water Pollution Control Plant (CWPCP) are far in excess of the design flow of 10 MGD.

In 1986, the plant superintendent petitioned to be allowed to use Carbonaceous Biochemical Oxygen Demand (CBOD) for NPDES reporting instead of total Biochemical Oxygen Demand (BOD). Permission was granted by the Department and reflected in the previous permit and fact sheet. This allowed the plant to be re-rated upward to 15 MGD for the biological portion of the plant (activated sludge).

In addition to the domestic wastewater flows and loadings, the CWPCP receives industrial loads from the Port of Longview, American Cyanamid (Cytec), and a more recent discharger, Foster Farms (chicken

processor). The Port, Cytec, and Foster Farms have influent limits placed on them by the Department's Industrial Section at Southwest Regional Office. Cytec discharges 59,000 gallons per day of wastewater to the CWPCP. Cytec produces coagulants (polymers). Foster Farms, who came on line about a year or so ago, has continued to violate their effluent organic loading limits to the plant. The wastewater from Foster Farms has a typical pH of 6.1, TSS of 147 mg/l, and a BOD strength of 403 mg/l.

The excessive organic loads from Foster Farms have caused plant upsets at the CWPCP by creating the habitat for an excessive growth of filamentous bacteria in the plant biomass. Plant management directed the installation of an alum storage and injection system, which feeds alum into the mixed liquor at the discharge end of the aeration basins prior to the mixed liquor entering the secondary clarifiers. Alum acts as a toxicant to the filamentous bacteria that have caused settling problems in the secondary clarifiers. The alum system has reduced NPDES Permit violations by improving the settling characteristics of the mixed liquor in the activated sludge plant. CSOB is currently working on a pretreatment ordinance to better regulate industrial wastewater loads to the CWPCP.

The CSOB started a sewer planning effort to address future growth in the Longview-Kelso area. A General Sewer Plan (GSP), authored by KCM, was completed in 1997. The GSP identified improvements and major upgrades to the existing CWPCP and the collection system. A project manager from Ace Consultants was hired by the CSOB to oversee the upgrade project. Another consulting firm, Carollo Engineers, won the contract for completing the Facilities Planning, Design, and construction oversight of the project. The construction should be in progress in the year 2000, with the completion date in about two years.

The upgrades include improvement to the collection system and doubling the capacity of the existing CWPCP to handle the ten- (10) year, two- (2) day storm flows.

The facility is classified as a major facility by EPA and is given higher regulatory priority.

COLLECTION SYSTEM STATUS

The present collection system sewers approximately 12,500 acres. Besides the collector pipes, the major components of the CSOB collection system include the Kelso Pump Station, dual forcemain between the pump stations, Kelso-Longview Pump Station, Industrial Way Interceptor Sewer tributary to the Kelso-Longview Pump Station, and the forcemain between the Kelso-Longview Pump Station and the CWPCP. The collection systems serves 25,500 people from the City of Longview, 12,500 from the City of Kelso, 6,000 from Beacon Hill Sewer District, and none from Cowlitz County.

In past years during heavy rainfall events, the Longview collection system has caused overflows to occur into the Longview Ditches. Overflow valves at several points in the collection system had to be opened to prevent backup in the collection system. For example, the 50th street overflow had to be opened on several occasions almost every year during the storm flows in the past 5 years. On several occasions, the overflow condition was due to a faulty electrical feed line to a collection system pump station causing pump failure and sewage backup. That problem has reportedly been fixed.

The City of Longview undertook a major collection system rehabilitation project in the mid 80's. They fixed and replaced pipes in a large part of their collection system to combat Infiltration and Inflow, but high flow problems and bypasses of raw sewage to surface water persist.

The improvements currently underway for the collection system include:

- A new 38 MGD pump station located adjacent to the City of Longview Operations Building on Industrial Way.

- Parallel HDPE 24 inch and 42 inch forcemains between the new West Industrial Way Pump Station and the CWPCP.

- Upgrade of the existing Kelso-Longview Pump Station to a firm capacity to 27 MGD meeting current reliability requirements.

- Rerouting of flow from Longview's 26th and Alabama Pump Station to the Mint Farm Forcemains and rebuilding the Alabama Pump Station.

- Construction of a gravity sewer intertie between the 3rd Avenue Interceptor and the Industrial Way Interceptor.

TREATMENT PROCESSES

The present plant consists of a headworks which includes comminutors, bypass bar screen, primary clarification, aeration basins, secondary clarifiers, chlorine disinfection, dechlorination, effluent pumping to the outfall line. The waste activated sludge (WAS) is pumped to the gravity belt thickeners prior to blending with primary sludge in the blend tank. The co-settled primary and secondary sludge is pumped from the primaries through a cyclonic degritter and into a gravity thickener. The thickened sludge from the floatation thickeners and gravity thickener is then pumped to the blend tank for mixing together and for temporary storage. From the blend tank, the sludge is pumped through a heat treatment process prior to being dewatered by vacuum coil filters. The cake is then hauled to a county landfill for composting. The composted sludge is used as cover for the landfill.

The present CWPCP is classified as a group III facility. After upgrade, the facility will become a group IV facility. The plant manager is certified at the group IV level as well as the operations supervisor. The plant is staffed presently at 18 full-time employees. The plant is staffed 7 days per week for two shifts/day. A SCADA system monitors plant operations during unmanned hours, and personnel will be called in for malfunctions during that time.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent from the wastewater facility is pumped to a diffuser at river mile 67.5, just downstream of the confluence with the Cowlitz River. The diffuser consists of a 30-inch diameter, 77-foot long steel diffuser pipe with 14 6-½ inch orifices on top of the diffuser pipe. The diffuser is parallel to the river and current and is at approximately 35-foot depth of the river at mean lower low water level.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the primary and secondary clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, and screenings are drained and disposed of as solid waste at the local landfill. Solids and scum removed from the primary and secondary clarifiers are thickened in gravity thickeners, thermally conditioned, and dewatered with vacuum coil filters, hauled to composting at the county landfill, and land applied under a permit from the Cowlitz County Health District.

PERMIT STATUS

The previous permit for this facility was issued on September 30, 1991, and extended on June 30, 1997, with an expiration date of June 30, 2001. The previous permit placed effluent limitations on 5-day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, Total Residual Chlorine, and Total Ammonia.

An application for permit renewal that was requested by the Department was submitted on October 18, 1999 and accepted by the Department on November 10, 1999.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on February 26, 1999. A compliance inspection without sampling was conducted on February 26, 1999.

During the last five (5) years, the Permittee has been out of compliance twenty-three times, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. Nine of the violations occurred within the last year. Most of the violations were for percent removal on Carbonaceous Biochemical Oxygen Demand (CBOD) and Total Suspended Solids (TSS). All but one of the rest of the violations was for TSS mass loading violations for both weekly and monthly average. One violation was for the Chlorine mass loading level being too high. Four of the six mass loading violations for TSS occurred in the last year and are probably related to the Foster Farms industrial discharge causing operational/process control problems at the CWPCP.

The CWPCP staff has reported several bypasses to the secondary portion of the facility with primary treated wastewater. The secondary bypasses were primarily due to high wet weather peak flows up to about 30 million gallons per day (mgd) or greater. The process problems caused by Foster Farms reduced the threshold bypass level lower that the 20 –30 mgd that they have historically been able to accommodate.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows:

Table 1: Wastewater Characterization

Parameter	Concentration
Flow, lowest monthly average	5.3 mgd
Flow, highest monthly average	14.5 mgd
Carbonaceous BOD_5 ($CBOD_5$), lowest monthly average	5 mg/l
$CBOD_5$, highest monthly average	23 mg/l
Total Suspended Solids (TSS), annual average	13 mg/l
TSS, lowest monthly average	5 mg/l
TSS, highest monthly average	29 mg/l
Ammonia (as N),	
Iron	438 ppb
Zinc	24 ppb
Chlorine – Total Residual	0.0 mg/l

The CWPCP also receives flows from two industrial sources and leachate from the County landfill. The volume of the leachate is 110,000 gallons per day (gpd). The pH is 7.93, TSS is 21, and the BOD is 30. Cytec Industries (polymer manufacturer) discharges 59,000 gpd to the CWPCP. Foster Farms (chicken processor) discharges 809,000 gpd of wastewater. The quality of the wastewater from Foster Farms is as follows: pH 6.1, TSS 147 mg/l, BOD 403 mg/.

SEPA COMPLIANCE

Cowlitz Sewer Operation Board has complied with SEPA as part of the planning process for the plant upgrade to be competed in 2003.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the Facility Plan/Pre-Design Report prepared by Carollo Engineers and are as follows:

Table 2: Design Standards for Cowlitz Water Pollution Control Plant (Existing Facility).

Parameter	Design Quantity
Monthly average flow (max. month) original design	10 MGD
Maximum month flow for hydraulic and CBOD purposes. (Ecology rerating)	15 MGD
Instantaneous peak flow	30 MGD
BOD_5 influent loading	16,690 lb/day
TSS influent loading	16,690 lb/day
Design population equivalent	83,000

Table 2A: Design Standards for Cowlitz Water Pollution Control Plant (Final Design).

Parameter	Design Quantity
Maximum month flow	26.0 MGD
Peak day flow	62.4 MGD
BOD, maximum month loading	31,200 lbs
BOD, peak day loading	31,200 lbs
Total Suspended Solids, maximum month loading	32,100 lbs
Total Suspended Solids, peak day loading	38,000 lbs

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, $CBOD_5$, and TSS are taken from Chapter 173-221 WAC are:

Table 3: Technology-based Limits.

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
$CBOD_5$ (concentration)	Average Monthly Limit is the most stringent of the following: - 25 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 40 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
*Chlorine	Average Monthly Limit = 0.5 mg/L Average Weekly Limit = 0.75 mg/L

The technology-based monthly average limitation for chlorine is derived from standard operating practices. The Water Pollution Control Federation's Chlorination of Wastewater (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/liter chlorine residual is maintained after fifteen minutes of contact time. See also Metcalf and Eddy, Wastewater Engineering, Treatment, Disposal and Reuse, Third Edition, 1991. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/liter chlorine limit on a monthly average basis. According to WAC 173-221-030(11)(b), the corresponding weekly average is 0.75 mg/liter.

*The existing permit has a chlorine limit of 0.03 mg/l monthly average, 0.09 mg/l weekly average and the facility is able to comply with it. The proposed permit includes the same limit.

The following technology-based mass limits for the upgraded plant are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly influent design loading (31,200 lbs/day (BOD_5), 32,100 lbs/day (TSS)) x 0.15 = 4680 lbs/day (BOD_5), 4815 lbs/day (TSS). The monthly effluent mass loading was computed by taking the ratio of (25 mg/L $CBOD_5$/30 mg/L BOD_5) x 4630 lbs/day = 3900 lbs/day ($CBOD_5$).

The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 7,020 lbs./day (BOD_5), 7223 lbs/day (TSS). The weekly average CBOD5 mass loading was computed as a ratio of 25 mg/L $CBOD_5$/30 mg/l BOD_5 x 7020 lbs/day = 5850 lbs/day ($CBOD_5$).

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation, (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a

receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Columbia River, which is, designated as a Class A receiving water in the vicinity of the outfall. Other nearby point source outfalls include the Longview Fibre Outfall. No significant nearby non-point sources of pollutants are known at this time. Characteristic uses include the following: water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	18 degrees Celsius maximum or incremental increases above background
PH	6.5 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Facility Plan/Pre-design Report, November 1999 for numeric criteria for toxics of concern for this discharge)

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls, which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and is defined as follows:

The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of UM3, UDKHDEN, CORMIX2, and dye study contained in the CWPCP Mixing Zone Study, March 1999, contained in the Facility Plan/Pre-design Report developed by Carollo Engineers. Information on seasonal ammonia limits were obtained from a Technical Memorandum dated March 20, 2000, sent to Jerry Schulz of CWPC and Bob Vivian of Ace Consultants, from Bill Fox and Merita Trohimovich of Cosmopolitan Engineering Group. The dilution factors have been determined to be 6.4 for Acute and 15.6 for Chronic at year 2013. Buildout dilution factors are 5.3 for Acute and 12.7 for Chronic (Mixing Zone Study):

	Acute	Chronic
Aquatic Life	6.4	15.6
Human Health, Carcinogen		15.6
Human Health, Non-carcinogen		15.6

Pollutants in an effluent may affect the aquatic environment near the point of discharge, (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for the Columbia River is the seven-day average low river flow with a recurrence interval of ten years (7Q10). Ambient data at critical conditions in the vicinity of the CWPCP outfall was taken from a Mixing Zone Study which is an appendix to the Cowlitz Sewer Operating Board Systems Improvements Project, Facilities Plan/Pre-Design Report dated November, 1999. The dye study was conducted in August 1998, and completed in March 1999. The ambient background data used for this permit includes the following from the Facilities Plan mentioned above:

Parameter	Value used
7Q10 low flow	97,400 cfs
Velocity (Acute, 10th percentile)	0 fps
Velocity (Chronic, median)	1 fps
Diffuser Depth	35 feet
Width	N/A (large)
Roughness (Darcy)	F=0.031
Slope	?
Temperature	15.4º C
pH (high)	7.9
Dissolved Oxygen	8.0 mg/L
Total Ammonia-N	0.053 mg/L*

Parameter	Value used
Fecal Coliform	41/100 mL dry weather (>100/100 mL storm related)
Conductivity	92 umhos/25c
Salinity	0 mg/L
Turbidity	20 NTU
Hardness	20 mg/L as CaCO3
As	0.6 µg/L
Pb	0.13 µg/L (blank contaminated)*
Copper	1.0 µg/L (total recoverable estimated value)
Hg	0 µg/L
Ni	0.5 µg/L
Zn	3.8 µg/L (total recoverable estimated value)*
All Other Metals	0.0 (below detection limits)

* Includes impacts from Longview Fibre Effluent plume at boundary of mixing zone.

BOD_5--This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water.

Temperature--The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at critical condition. The receiving water temperature at the critical condition is 15.4 ^{o}C and the effluent temperature is 20 ^{o}C. The predicted resultant temperature at the boundary of the chronic mixing zone is 15.7^{o}C, and the incremental rise is 0.3 ^{o}C.

Temperature and pH—Modeling of the pH was unnecessary because the CWPCP effluent pH is below 8 at approx. 6.8 and the Columbia River is well buffered with an alkalinity of 92 (as Mg $CaCO_3$/L). Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitations for pH were placed in the permit and temperature was not limited.

Using a simple mixing calculation at a chronic dilution factor of 15.6, it was determined that no water quality based temperature limit is necessary for the CWPCP.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 15.6.

Under critical conditions, there is no predicted violation of the Water Quality Standards for Surface Waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters, or from having surface water quality-based effluent limits.

The following toxics were determined to be present in the discharge: Ammonia, and heavy metals. A reasonable potential analysis (See Facility Plan) was conducted on these parameters to determine whether or not effluent limitations would be required in this permit.

The determination of the reasonable potential for Ammonia, Copper, Mercury, and Lead to exceed the water quality criteria was evaluated with procedures given in EPA, 1991 (See Facility Plan) at the critical condition. The critical condition in this case occurs in July-August. The parameters used in the critical condition modeling are as follows: acute dilution factor 6.4, chronic dilution factor 15.6, receiving water temperature 15.4°C, receiving water alkalinity 92 (as mg $CaCO_3$/L). The background pollutants of concern are Arsenic, Chlorine, and Ammonia as N, Copper, Mercury, Lead, Nickel and Zinc.

Valid ambient background data was available for Arsenic, Nickel, and Zinc. Calculations using all applicable data resulted in a determination that there is no reasonable potential for this discharge to cause a violation of water quality standards. This determination assumes that the Permittee meets the other effluent limits of this permit.

Effluent limits were derived for Ammonia, Copper, Mercury, and Lead, which were determined to have a reasonable potential to cause a violation of the Water Quality Standards. Effluent limits were calculated using methods from EPA, 1991, as shown in Facility Plan.

*The resultant water quality based effluent limits are as follows:

Toxicant	*Existing Permit Limits		Design Year 2013	
	Max Day (ug/L)	Monthly Avg (ug/L)	Max Day (ug/L)	Monthly Avg (ug/L)
Ammonia	(June-August) 33,000 2754 lbs/day (September-May) 53,000 4423 lbs./day	(June-August) 17,000 1419 lbs./day (September-May) 26,000 2170 lbs./day	(May-October) 33,700 7308 lbs./day (November-April) 51,500 11,167 lbs./day	(May-October) 15,000 3253 lbs./day (November-April) 22,800 4944 lbs./day
Copper	N/A	N/A	16.4	11.2
Mercury	N/A	N/A	0.31	0.21
Lead	N/A	N/A	4.5	3.1

*Note: The existing effluent limits are in effect until the plant upgrade is completed. When the upgraded plant comes on line, the Design Year Water Quality based limits will be in effect.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

In accordance with WAC 173-205-040, the Permittee's effluent has been determined to have the potential to contain toxic chemicals. The proposed permit would ordinarily contain requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44, and in accordance with procedures in Chapter 173-205 WAC. However, the Permittee is improving pollution control in order to

meet other regulatory requirements. The results of an effluent characterization for toxicity would not be accurate until after the improvements have been completed.

Special Condition S.B.E & S.9.E delays effluent characterization for WET until the completion or startup of the new or improved wastewater facility.

WAC 173-205-030(4) allows the Department to delay effluent characterization for WET for existing facilities that are under a compliance schedule in a permit to implement technology-based controls or to achieve compliance with surface water quality-based effluent limits.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

As was found by the previous permit writer, no sediment analysis of the receiving stream is required. Periodic dredging in the vicinity of the outfall removes settled contaminants, so Sediment Management Standards are met.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program, and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 1994) for Activated Sludge Plants > 5 MGD.

As a pretreatment POTW, the CWPCP is required to have influent, primary clarifier effluent, final effluent, and sludge sampled for toxic pollutants in order to characterize the industrial input. Sampling is also done to determine if pollutants interfere with the treatment process or pass through the plant to the sludge or the receiving water. The monitoring data will be used by the CWPCP pretreatment staff to develop local limits, which commercial and industrial users must meet.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* The laboratory at this facility is accredited for CBOD, TSS, Fecal Coliform, pH, Total Ammonia, and Total Chlorine Residual.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 requires the Permittee to take the actions detailed in proposed permit requirement S4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Any future planning for treatment plant expansion or modification to the treatment plant capacity must adequately address consideration of water reuse. Condition S4 restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken, so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems, the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA, under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the Cowlitz County Health Department.

PRETREATMENT

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department has been delegated authority to administer the Pretreatment Program [i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)]**.** Under this delegation

of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program, which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f)(1)(iii)], the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing state waste discharge permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge (WAC 173-216-110(5)) (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a State Waste Discharge Permit sixty days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with State water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g., tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities (40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.).

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs to " take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system". Examples of such routine measures include regular review of business tax licenses for existing businesses, and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a State waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a State waste discharge permit application.

Requirements for Performing an Industrial User Survey

This POTW has the potential to serve significant industrial or commercial users and is required to perform an Industrial User Survey. The goal of this survey is to develop a list of SIUs and PSIUs, and of equal importance, to provide sufficient information about industries which discharge to the POTW, to determine which of them require issuance of State waste discharge permits or other regulatory controls. An Industrial User Survey is an important part of the regulatory process used to prevent interference with treatment processes at the POTW and to prevent the exceedance of water quality standards. The Industrial User Survey also can be used to contribute to the maintenance of sludge quality, so that sludge can be a useful biosolids product rather than an expensive waste problem. An Industrial User Survey is a rigorous method for identifying existing, new, and proposed significant industrial users and potential significant industrial users. A complete listing of methodologies is available in the Department's guidance document entitled "Conducting an Industrial User Survey."

OUTFALL EVALUATION

Proposed Permit Condition S11 requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law, and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary, to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations, which are described in the rest of this fact sheet.

Public notice of application was published on September 5, 1999, and September 12, 1999, in the Longview Daily News to inform the public that an application had been submitted and to invite comment on the issuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on November 14, 2000, in *Longview Daily News* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P. O. Box 47775
Olympia, WA 98504-7775.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6279, or by writing to the address listed above.

This permit and fact sheet were written by Al Bolinger, P.E.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Refer to Mixing Zone Study conducted by Cosmopolitan Engineers contained in the back of Facility Plan/Pre-design Report dated November 1999 by Carollo Engineers and a Technical Memorandum dated March 20, 2000 and sent to Jerry Schultz of CWPC and Bob Vivian of Ace Consultants from Bill Fox and Merita Trohimovich of Cosmopolitan Engineering Group.

APPENDIX D--RESPONSE TO COMMENTS

The following comments were received from Jerry Schulz, Superintendent of the Cowlitz Water Pollution Control Plant. All of the comments were addressed and incorporated into the Permit and Fact Sheet.

FACT SHEET COMMENTS

Page 1 – General Information: the applicant is the Cowlitz Sewer Operating Board, not the Cowlitz County Sewer Operating Board.

Page 2 (last paragraph) & page 3 (first paragraph): the correct spelling is CYTEC not CYTECH.

Page 4 – **Treatment Processes** – first sentence: add dechlorination to the treatment processes…following chlorine disinfection (second line).
First paragraph – second sentence: WAS is not pumped to flotation thickeners. These units are no longer in service. WAS is pumped to GBTs for thickening.
Also, WAS is no longer put into the recycle pump station.
Second paragraph: staffing level is now at 18 employees.

Page 4 – **Residual Solids** – near the bottom of the paragraph: solids are thermally conditioned, and dewatered with vacuum coil filters (not coil filter presses).

Page 5 – **Summary of Compliance**…..A review of the DMRs submitted to the Department shows a total of twenty two (22) violations from 1995 through 1999, not 23. Only nine (9) violations occurred in 1999 not 14. There has never been a violation for excessive chlorine residual nor for excess pounds of chlorine discharged. Although we have received notices from DOE that we had chlorine limit violations, the notices were incorrectly issued and appear to have been the result of misinterpretation or misunderstanding of the NPDES Permit limits on the part of the Department.

Page 6 – **SEPA Compliance**: the plant upgrade is to be completed in 2003 not 2001. The ORDER for completion of the upgrade is July 1, 2003.

NPDES DRAFT PERMIT COMMENTS

Section S2 – **Monitoring Requirements** (page 8/9): the table appears to be incomplete as at the top of page 9 there is no direction given for categories, parameters nor units for sludge.
Also, what is the purpose of sampling the sludge within 30 days of sampling the liquid stream? Our facility does not have digesters. Sludge generated from the liquid stream is typically processed within a day of removal from the liquid stream.
Is the sampling to be done on the sludge or on the final product – biosolids compost?
In the last section of the table for influent and effluent sampling, ANNUAL is listed with a superscript "d" indicating a footnote. What is the meaning of this footnote?

Section S3 – **Reporting and Recordkeeping**: paragraphs 4, 5 and 6 are duplicative to the first 3 paragraphs and should be deleted.

Response to Comments During Public Notice

Comment 1: The flow monitoring will be changed in S2 to influent flow since that is the more reliable flow measurement.

Comment 2: The rated capacity for the existing and upgraded plant will remain the same. In order to change the rated capacity, the rerating process described in the Washington State Criteria for Sewage Works Design Manual, section G1-5.4.2 would have to be followed and approved by Ecology. If we approved the rerating, the Facility Plan for the new upgrade of the treatment plant would have to be amended to reflect the new capacity. We can consider the request for changing the permit at a later date if warranted by a rerating process and amended Facility Plan.

Comment 3: The method for calculating weekly average CBOD and Suspended Solids will not change. It is standard procedure to multiply the monthly average values by 1.5 to arrive at the weekly mass loading limits.